REMARKS/ARGUMENTS

In the specification, the cross-reference to related applications has been amended to reflect proper priority of the application. Each of pending independent claims 46 and 50 has been amended to more clearly define the invention. Claim 53 has been amended to correct a typographical error. Claims 47, 51, and 54-57 have been withdrawn.

Rejections Under 35 U.S.C §112

Reconsideration of the rejection of the claims under 35 U.S.C. §112 as lacking support in the originally filed application is respectfully requested. The present application claims priority to provisional application No. 60/145,575, ("the '575 provisional") filed July 26, 1999. The '575 provisional included "Attachment A" disclosing a number of deicing and anti-icing formulations, the formulations including components in the presently claimed ranges. The following is a breakdown of the formulations disclosed in the '575 provisional application, including a conversion of the volumetric content by percent to the content of the components by mass, or weight, and ultimately the percent present of each component by weight. The calculations and charts below illustrate the support for the presently claimed weight percentages in the parent '575 provisional application.

Attachment A of the '575 provisional listed components of each deicing and anti-icing composition by percent present by volume. Blend A is the carbohydrate component of some of the deicing and anti-icing compositions. Blend A is described on page 13 of the provisional application and comprises 40% dissolved solids of 25 D.E. (dextrose equivalent) corn syrup by volume. Corn syrup is a carbohydrate composition which includes hexoses, or saccharides having a molecular weight range including carbohydrates in the range of about 180 to 1000, and 1500 grams per mole. Dextrose equivalent is defined as the total amount of reducing sugars expressed as dextrose (glucose) that is present in a corn syrup. 180 grams per mole is the molecular weight of monosaccharides, hexoses, such as glucose and fructose. Corn syrup largely consists of sugars such as hexoses, and polysaccharides based thereon.

Attached hereto as Exhibit A is the carbohydrate basis by chromatographic analysis of various corn syrup compositions. Exhibit A is taken from a publication known as the "Critical

Data Tables" published by the Corn Refiners Association. The corn syrups are listed by dextrose equivalent, and the table includes DE 10 to DE 67 (DE 36, DE 43, and DE 63 are also carbohydrate compositions of the present invention). As indicated in the table, DE 25 includes 7.7% monosaccharides (such as fructose and glucose, molecular weight = 180), 7.5% disaccharides (such as sucrose, m.w. = 342), 7.2% trisaccharides (m.w. = 504), 7.2% tetrasaccharides (m.w. = 666), 6.5% pentasaccharides (m.w. = 828), 5.2% hexasaccharides (m.w. = 990), 4.6% heptasaccharides (m.w. = 1152), and 54.1% higher saccharides (m.w. = 1314, 1476, 1638, and higher).

It is also contemplated to use other carbohydrate sources in the deicing compositions of the present invention, including those listed in the following table. The source of the reference in the '575 provisional application is also illustrated in the table:

Carbohydrate	Source in '575 Provisional	Description
DE 25	Pages 13-23, 26-30	Blend of saccharides
Fructose	Page 24	Monosaccharide
Granular sugar (sucrose)	Page 25	Disaccharide
DE 36	Pages 31-32	Blend of saccharides
DE 43	Pages 31-32	Blend of saccharides
DE 63	Pages 31-32	Blend of saccharides
55% High Fructose Corn Syrup	Pages 31-32	Blend of saccharides

A variety of compounds, such as salts, are also listed as being capable of being combined with the sugar-water mixtures of the '575 provisional (See summary of invention, page 4 of '575 provisional). Page 31 of the '575 provisional further includes a list of components with which the sugar water may be used in a deicing composition. The list includes: magnesium chloride,

calcium chloride, sodium chloride, potassium chloride, rock salt, sand, cinders, abrasives, urea, calcium magnesium acetate, and potassium acetate.

Blend A is the carbohydrate component of the anti-icing and deicing compositions found in pages 13-23, and 26-30 of attachment A of the '575 provisional. Blend A is comprised of 40% DE 25, and is used in different ratios in combination with 30% $MgCl_2$ to form three different mixtures, namely compositions A-10, A-20, and A-40, the contents of which are shown below:

Deicer Composition	Percent $MgCl_2$ (30% $MgCl_2$ solution) by volume	Percent Blend A (40% dissolved solids) by volume
A-10	90	10
A-20	80	20
A-40	60	40

In order to convert the volumetric content of the compositions to mass content, and finally a weight percentage, it was necessary to first determine the total content, in percent by volume of each component in the deicing compositions. In order to determine the total volumetric percentage for the carbohydrate component, the volumetric percent of dissolved solids of carbohydrates in Blend A (40%) is multiplied by the percentage Blend A is present in each deicing composition. For example, 40% of 10% of deicing composition A-10 (.40 × .10 = 4%) yields 4% carbohydrate by volume. Similarly, deicing composition A-20 comprises 40% dissolved solids (carbohydrate content) of 20% total content (.40 ×.20 = 8%), which yields 8% carbohydrates by volume. Deicing composition A-40 comprises 40% dissolved solids (carbohydrate content) of 40% total content (.40 × .40 = 16%) which yields 16% carbohydrates by volume.

In order to determine the total volumetric content by percent of the magnesium chloride composition in each deicing composition, the volume percent of $MgCl_2$ in solution (30%) is multiplied by the volume content by percent the $MgCl_2$ solution is in the total composition. For example, 30% of 90% of deicing composition A-10 (.30 × .90 = 27%) yields 27% $MgCl_2$ by

volume. Similarly, deicing composition A-20 comprises 30% of 80% total content (.30 × .80 = 24%), which yields 24% $MgCl_2$ by volume. Deicing composition A-40 comprises 30% of 60% total content (.30 × .60 = 18%), which yields 18% $MgCl_2$ by volume.

Water represents the remaining fraction in each composition. The following table represents the present content by volume of each component:

Deicer Composition	Total $MgCl_2$ by volume	Total carbohydrate content by volume	Total water content by volume
A-10	27%	4%	69%
A-20	24%	8%	68%
A-40	18%	16%	66%

The density of each component, which is a known value and is listed on page 26 of the provisional application, was then used to convert the content by volume percent to mass, by weight in grams. The mass in grams of each component was then used to determine the total mass of the composition, which was then used to determine the content of each component by weight percentage.

Composition A-10

$MgCl_2$

The specific gravity of $MgCl_2$ is listed as 1.297 g/cm^3. Assuming 100 cm^3 of composition A-10, the weight in grams is found by multiplying 27 cm^3 by 1.297 g/cm^3 (27 × 1.297 = 35.019 g), which yields 35.019g $MgCl_2$ in composition A-10.

DE 25

The density, or specific gravity of DE 25 corn syrup is more variable than $MgCl_2$, ranging between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming

100 cm^3 of composition A-10, the weight in grams is found by multiplying 4 cm^3 by 1.30 g/cm^3 (4 ×1.30 = 5.2 g), which yields 5.2g DE 25 in composition A-10.

Water

The density of water at nineteen degrees Celsius is 1.00 g/cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (4% DE25 + 27% $MgCl_2$) = 69%) 69% of the composition. Assuming 100 cm^3 of composition A-10, the weight in grams of water present is determined by multiplying 69 g/cm^3 by 1.00 g/cm^3 (69 × 1 = 69 g), which yields 69g water in composition A-10.

The weights of the individual components are added together to determine the total weight of the composition. The total weight is then utilized to determine each component's weight percentage. For example, $MgCl_2$ (35.019g) + DE25 (5.2g) + water (69g) = 109.219g total weight of composition A-10. 35.019 g of $MgCl_2$ represents 32.06% by weight of composition A-10. 5.2g of DE 25 represents 4.76 % by weight of composition A-10. 69g of water represents 63.18% by weight of composition A-10.

Composition A-20

$MgCl_2$

The specific gravity of $MgCl_2$ is listed as 1.297 g/cm^3. Assuming 100 cm^3 of composition A-20, the weight in grams is found by multiplying 24 cm^3 by 1.297 g/cm^3 (24 × 1.297 = 31.128 g), which yields 31.128g $MgCl_2$ in composition A-20.

DE 25

The density, or specific gravity of DE 25 corn syrup is more variable than $MgCl_2$, ranging between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming 100 cm^3 of composition A-20, the weight in grams is found by multiplying 8 cm^3 by 1.30 g/cm^3 (8 ×1.30 = 10.4 g), which yields 5.2g DE 25 in composition A-20.

Water

The density of water at nineteen degrees Celsius is 1.00 g/cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (8% DE 25 + 24% $MgCl_2$) = 68%) 68% of the composition. Assuming 100 cm^3 of composition A-20, the grams of water present is determined by multiplying 68 g/cm^3 by 1.00 g/cm^3 (68 × 1 = 68g), which yields 68g of water in composition A-20.

The weights of the components are added together to determine the total weight of the composition. The total weight is then utilized to determine each component's weight percentage. For example, $MgCl_2$ (31.128g) + DE25 (10.4g) + water (68g) = 109.528g total weight of composition A-20. 31.128g of $MgCl_2$ represents 28.42% by weight of composition A-20. 10.4g of DE 25 represents 9.50 % by weight of composition A-20. 68g of water represents 62.08% by weight of composition A-20.

Composition A-40

$MgCl_2$

The specific gravity of $MgCl_2$ is listed as 1.297 g/cm^3. Assuming 100 cm^3 of composition A-40, the weight in grams is found by multiplying 18 cm^3 by 1.297 g/cm^3 (18 × 1.297 = 23.346 g), which yields 23.346g $MgCl_2$ in composition A-40.

DE 25

The density, or specific gravity of DE 25 corn syrup is more variable than $MgCl_2$, ranging between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming 100 cm^3 of composition A-40, the weight in grams is found by multiplying 16 cm^3 by 1.30 g/cm^3 (16 ×1.30 = 20.8 g), which yields 20.8g DE 25 in composition A-40.

Water

The density of water at nineteen degrees Celsius is 1.00 g/cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (18% $MgCl_2$ +16%

DE 25) = 66%) 66% of the composition. Assuming 100 cm^3 of composition A-40, the grams of water present is determined by multiplying 66 g/cm^3 by 1.00 g/cm^3 (66 × 1 = 66 g), which yields 66g of water in composition A-40.

The weights of the components are added together to determine the total weight of the composition. The total weight is then utilized to determine each component's weight percentage. For example, $MgCl_2$ (23.346g) + DE25 (20.8g) + water (66g) = 110.146g total weight of composition A-40. 23.346 g of $MgCl_2$ represents 21.20% by weight of composition A-40. 20.8g of DE25 represents 18.88 % by weight of composition A-40. 66g of water represents 59.92% by weight of composition A-40.

The following table summarizes the weight of each component present in the compositions, as well as the percentage of the composition represented by the weight:

Composition	$MgCl_2$		D.E.25		Water	
	Mass (g)	% by weight	Mass (g)	% by weight	Mass (g)	% by weight
A-10	35.019	32.06%	5.2	4.76%	69	63.18%
A-20	31.128	28.42%	10.4	9.50%	68	62.08%
A-40	23.346	21.20%	20.8	18.88%	66	59.92%

In addition to the variety of carbohydrate compositions, which may be used in the compositions of the present invention, a wide range of concentrations of the carbohydrate solution is also contemplated; for example, solutions from 5% dissolved solids to 100% dissolved solids, may also be used. It is clearly stated on page 31 of the '575 provisional, "based upon the data collected, all forms of sugar are a viable road de-icer if formulated correctly. Concentrations from 10% DS [dissolved solids] to 100% DS are applicable." Since it is therefore contemplated to use a sugar solution of 100% dissolved solids ("DS-100"), we can determine the mass of the components in deicing compositions of the '575 provisional by substituting DS-100 for Blend A, which is 40% dissolved solids. DS-100 solution can be combined in the taught ratios with 30% $MgCl_2$ to form deicing compositions of: 1) 90/10 ratio of $MgCl_2$/ DE 25 ("(DS-100)-10"); 2) 80/20 ratio of $MgCl_2$/ DE 25 ("(DS-100)-20"); and 3) 60/40 ratio of $MgCl_2$/ DE 25 ("(DS-100)-40").

In order to convert the volumetric content of the compositions to mass content, and finally a weight percentage, it was necessary to first determine the total content, in percent by volume of each component in the deicing composition. In order to determine the total volumetric percent of the carbohydrate component, the volumetric percent of dissolved solids of carbohydrates of DS-100 (100%) is multiplied by the amount of DS-100 present in each deicing composition. For example, 100% of 10% carbohydrate by volume for deicing composition (DS-100)-10 (1 × .10 = 10%) yields 10% carbohydrates by volume. Similarly, deicing composition (DS-100)-20 comprises 100% dissolved solids of 20% total content (1 ×.20 = 20%), which yields 20% carbohydrates by volume. Deicing composition (DS-100)-40 comprises 100% dissolved solids of 40% total content (1 × .40 = 40%), which yields 40% carbohydrates by volume.

In order to determine the total content by volume of the magnesium chloride composition in each deicing composition, the volume percent of $MgCl_2$ in solution (30%) is multiplied by the volume content percent the $MgCl_2$ solution is in the total composition; for example, 30% of 90% for deicing composition (DS-100)-10; (.30 × .90 = 27%), which yields 27% $MgCl_2$ by volume. Similarly, deicing composition (DS-100)-20 comprises 30% of 80% total content (.30 × .80 = 24%), which yields 24% $MgCl_2$ by volume. Deicing composition (DS-100)-40 comprises 30% of 60% total content (.30 × .60 = 18%), which yields 18% $MgCl_2$ by volume. The following table represents the content by volume of each component:

Deicer Composition	Total $MgCl_2$ by volume	Total carbohydrate content by volume
(DS-100)-10	27%	10%
(DS-100)-20	24%	20%
(DS-100)-40	18%	40%

The density of each component, which is a known value and is listed on page 26 of the provisional application, was then used to convert the content by volume percent to content by mass in grams. The mass in grams of each component was then used to determine the total mass

of the composition, which was then used to determine the content of each component by weight percent.

Composition (DS-100)-10

$MgCl_2$

The specific gravity of $MgCl_2$ is listed as 1.297 g/cm3. Assuming 100 cm^3 of composition (DS-100)-10, the weight in grams is found by multiplying 27 cm^3 by 1.297 g/cm^3 (27 × 1.297 = 35.019 g), which yields 35.019g $MgCl_2$ in composition (DS-100)-10.

DE 25

The density, or specific gravity, of DE 25 corn syrup is more variable than $MgCl_2$, ranging between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming 100 cm^3 of composition (DS-100)-10, the weight in grams is found by multiplying 10 cm^3 by 1.30 g/cm^3 (10 ×1.30 = 13 g), which yields 13g DE 25 in composition (DS-100)-10.

Water

The density of water at nineteen degrees Celsius is 1.00 g/cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (10% + 27%) = 63%) 63% of the composition. Assuming 100 cm^3 of composition (DS-100)-10, the weight in grams of water present is determined by multiplying 63 g/cm^3 by 1.00 g/cm^3 (63 × 1 = 63 g), which yields 63g water in composition (DS-100)-10.

The weights of the components are added together to determine the total weight of the composition; and the total weight is then utilized to determine each component's weight percentage. For example, $MgCl_2$ (35.019g) + DE 25 (13g) + water (63g) = 111.019g total weight of composition (DS-100)-10. 35.019g of $MgCl_2$ represents 31.54% by weight of composition (DS-100)-10. 13g of DE 25 represents 11.71% by weight of composition (DS-100)-10. 63g of water represents 56.75% by weight of composition (DS-100)-10.

Composition (DS-100)-20

$MgCl_2$

The specific gravity of $MgCl_2$ is listed as 1.297 g/cm^3. Assuming 100 cm^3 of composition (DS-100)-20, the weight in grams is found by multiplying 24 cm^3 by 1.297 g/cm^3 (24 × 1.297 = 31.128g), which yields 31.128g $MgCl_2$ in (DS-100)-20.

DE 25

The density, or specific gravity of DE 25 corn syrup is more variable than $MgCl_2$, ranging between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming 100 cm^3 of composition (DS-100)-20, the weight in grams is found by multiplying 20 cm^3 by 1.30 g/cm^3 (20 ×1.30 = 26g), which yields 26g DE 25 in composition (DS-100)-20.

Water

The density of water at nineteen degrees Celsius is 1.00 g/cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (20% + 24%) = 56%) 56% of the composition. Assuming 100 cm^3 of composition (DS-100)-20, the grams of water present is determined by multiplying 56 g/cm^3 by 1.00 g/cm^3 (56 × 1 = 56g), which yields 56g of water in composition (DS-100)-20.

The weights of each individual component are added together to determine the total weight of the composition. The total weight is then utilized to determine each component's weight percentage. For example, $MgCl_2$ (31.128g) + DE25 (26g) + water (56g) = 113.128g total weight of composition (DS-100)-20. 31.128g of $MgCl_2$ represents 27.52% by weight of composition (DS-100)-20. 26g of DE 25 represents 22.98% by weight of composition (DS-100)-20. 56g of water represents 49.50% by weight of composition (DS-100)-20.

Composition (DS-100)-40

$MgCl_2$

The specific gravity of $MgCl_2$ is listed as 1.297 g/cm^3. Assuming 100 cm^3 of composition (DS-100)-40, the weight in grams is found by multiplying 18 cm^3 by 1.297 g/cm^3 (18 × 1.297 = 23.346 g), which yields 23.346g $MgCl_2$ in composition (DS-100)-40.

DE 25

The density, or specific gravity of DE 25 corn syrup is more variable than $MgCl_2$, ranging between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming 100 cm^3 of composition (DS-100)-40, the weight in grams is found by multiplying 40cm^3 by 1.30g/cm^3 (40 ×1.30 = 52g), which yields 52g DE 25 in composition (DS-100)-40.

Water

The density of water at nineteen degrees Celsius is 1.00 cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (18% +40%) = 42%) 42% of the composition. Assuming 100 cm^3 of composition (DS-100)-40, the grams of water present is determined by multiplying 42g/cm^3 by 1.00 /cm^3 (42 × 1 = 42g), which yields 42g of water in composition (DS-100)-40.

The weights of the individual components are added together to determine the total weight of the composition; the total weight is then utilized to determine each component's weight percentage. For example, $MgCl_2$ (23.346g) + DE 25 (52g) + water (42g) = 117.346g total weight of composition (DS-100)-40. 23.346 g of $MgCl_2$ represents 19.89% by weight of composition (DS-100)-40. 52g of DE 25 represents 44.31 % by weight of composition (DS-100)-40. 42g of water represents 35.79% by weight of composition (DS-100)-40.

The following table summarizes the weight of each component present in the compositions, as well as the percent of the composition represented by the weight:

Composition	$MgCl_2$		D.E.25		Water	
	Mass (g)	% by weight	Mass (g)	% by weight	Mass (g)	% by weight
(DS-100)-10	35.019	31.54%	13	11.71%	63	56.75%
(DS-100)-20	31.128	27.52%	26	22.98%	56	49.50%
(DS-100)-40	23.346	19.89%	52	44.31%	42	35.79%

It is also taught, as on page 18 of the '575 provisional, to use a 30% calcium magnesium acetate (CMA) solution instead of $MgCl_2$ in the deicing and anti-icing compositions of the present invention. CMA has the molecular formula of $C_2H_4O_2$ Ca Mg, and a specific gravity of 1.2 (obtained from Merck Index). We can insert CMA into the calculations for compositions A-10, A-20, A-40, (DS-100)-10, (DS-100)-20, and (DS-100)-40 to determine the weight percent of the compositions with CMA.

Composition A-10[CMA]

CMA

The specific gravity of CMA is 1.2 g/cm^3, as shown by attached Exhibit B, two material safety data sheets for CMA. Assuming 100 cm^3 of composition A-10, the weight in grams is found by multiplying 27 cm^3 by 1.2 g/cm^3 (27 × 1.2 = 32.4g), which yields 32.4g CMA in composition A-10[CMA].

DE 25

The density, or specific gravity of DE 25 corn syrup ranges between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming 100 cm^3 of composition A-10[CMA], the weight in grams is found by multiplying 4 cm^3 by 1.30 g/cm^3 (4 ×1.30 = 5.2 g), which yields 5.2g DE 25 in composition A-10[CMA].

Water

The density of water at nineteen degrees Celsius is 1.00 g/cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (4% DE25 + 27%

CMA) = 69%) 69% of the composition. Assuming 100 cm^3 of composition A-10[CMA], the weight in grams of water present is determined by multiplying 69 g/cm^3 by 1.00 g/cm^3 (69 × 1 = 69 g), which yields 69g water in composition A-10[CMA].

The weights of the individual components are added together to determine the total weight of the composition. The total weight is then utilized to determine each component's weight percentage. For example, CMA (32.4g) + DE 25 (5.2g) + water (69g) = 106.6g total weight of composition A-10[CMA]. 32.4g of CMA represents 30.39% by weight of composition A-10[CMA]. 5.2g of DE 25 represents 4.88 % by weight of composition A-10[CMA]. 69g of water represents 64.73% by weight of composition A-10[CMA].

Composition A-20 [CMA]

CMA

The specific gravity of CMA is 1.2 g/cm^3. Assuming 100 cm^3 of composition A-20[CMA], the weight in grams is found by multiplying 24 cm^3 by 1.2 g/cm^3 (24 × 1.2 = 28.8g), which yields 28.8g CMA in composition A-20[CMA].

DE 25

The density, or specific gravity of DE 25 corn syrup ranges between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming 100 cm^3 of composition A-20[CMA], the weight in grams is found by multiplying 8 cm^3 by 1.30 g/cm^3 (8 ×1.30 = 10.4 g), which yields 5.2g DE 25 in composition A-20[CMA].

Water

The density of water at nineteen degrees Celsius is 1.00 g/cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (8% DE 25 + 24% CMA) = 68%) 68% of the composition. Assuming 100 cm^3 of composition A-20[CMA], the grams of water present is determined by multiplying 68 g/cm^3 by 1.00 g/cm^3 (68 × 1 = 68g), which yields 68g of water in composition A-20[CMA].

The weights of the components are added together to determine the total weight of the composition. The total weight is then utilized to determine each component's weight percentage. For example, CMA (28.8g) + DE25 (10.4g) + water (68g) = 107.2g total weight of composition A-20. 28.8g of CMA represents 26.87% by weight of composition A-20[CMA]. 10.4g of DE 25 represents 9.70 % by weight of composition A-20[CMA]. 68g of water represents 63.43% by weight of composition A-20[CMA].

Composition A-40 [CMA]

CMA

The specific gravity of CMA is 1.2 g/cm^3. Assuming 100 cm^3 of composition A-40[CMA], the weight in grams is found by multiplying 18 cm^3 by 1.2 g/cm^3 (18 × 1.2 = 21.6g), which yields 21.6g CMA in composition A-40[CMA].

DE 25

The density, or specific gravity of DE 25 corn syrup ranges between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming 100 cm^3 of composition A-40[CMA], the weight in grams is found by multiplying 16 cm^3 by 1.30 g/cm^3 (16 ×1.30 = 20.8 g), which yields 20.8g DE 25 in composition A-40[CMA].

Water

The density of water at nineteen degrees Celsius is 1.00 g/cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (18% CMA +16% DE 25) = 66%) 66% of the composition. Assuming 100 cm^3 of composition A-40[CMA], the grams of water present is determined by multiplying 66 g/cm^3 by 1.00 g/cm^3 (66 × 1 = 66 g), which yields 66g of water in composition A-40[CMA].

The weights of the components are added together to determine the total weight of the composition. The total weight is then utilized to determine each component's weight percentage. For example, CMA (21.6g) + DE25 (20.8g) + water (66g) = 108.4g total weight of composition

A-40[CMA]. 21.6g of CMA represents 19.93% by weight of composition A-40[CMA]. 20.8g of DE 25 represents 19.19% by weight of composition A-40[CMA]. 66g of water represents 60.89% by weight of composition A-40[CMA].

The following table summarizes the weight of each component present in the CMA compositions, as well as the percentage of the composition represented by the weight:

Composition	CMA		D.E.25		Water	
	Mass (g)	% by weight	Mass (g)	% by weight	Mass (g)	% by weight
A-10[CMA]	32.4	30.39%	5.2	4.88%	69	64.73%
A-20[CMA]	28.8	26.87%	10.4	9.70%	68	63.43%
A-40[CMA]	21.6	19.93%	20.8	19.19%	66	60.89%

The following represents a determination of the compositions of the invention for CMA solution with DS-100 as the carbohydrate source.

Composition (DS-100)-10[CMA]

CMA

The specific gravity of CMA is 1.2 g/cm3. Assuming 100 cm^3 of composition (DS-100)-10[CMA], the weight in grams is found by multiplying 27 cm^3 by 1.2 g/cm^3 ($27 \times 1.2 = 32.4g$), which yields 32.4g CMA in composition (DS-100)-10[CMA].

DE 25

The density, or specific gravity, of DE 25 corn syrup varies between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming 100 cm^3 of composition (DS-100)-10[CMA], the weight in grams is found by multiplying 10 cm^3 by 1.30 g/cm^3 ($10 \times 1.30 = 13$ g), which yields 13g DE 25 in composition (DS-100)-10[CMA].

Water

The density of water at nineteen degrees Celsius is 1.00 g/cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (10% + 27%) = 63%) 63% of the composition. Assuming 100 cm^3 of composition (DS-100)-10[CMA], the weight in grams of water present is determined by multiplying 63 g/cm^3 by 1.00 g/cm^3 (63 × 1 = 63 g), which yields 63g water in composition (DS-100)-10[CMA].

The weights of the components are added together to determine the total weight of the composition; and the total weight is then utilized to determine each component's weight percentage. For example, CMA (32.4g) + DE 25 (13g) + water (63g) = 108.4g total weight of composition (DS-100)-10[CMA]. 32.4g of CMA represents 29.90% by weight of composition (DS-100)-10[CMA]. 13g of DE 25 represents 11.99% by weight of composition (DS-100)-10[CMA]. 63g of water represents 58.12% by weight of composition (DS-100)-10[CMA].

Composition (DS-100)-20[CMA]

CMA

The specific gravity of CMA is listed as 1.2 g/cm^3. Assuming 100 cm^3 of composition (DS-100)-20[CMA], the weight in grams is found by multiplying 24 cm^3 by 1.2 g/cm^3 (24 × 1.2 = 28.8g), which yields 28.8g CMA in (DS-100)-20[CMA].

DE 25

The density, or specific gravity of DE 25 corn syrup varies between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming 100 cm^3 of composition (DS-100)-20[CMA], the weight in grams is found by multiplying 20 cm^3 by 1.30 g/cm^3 (20 ×1.30 = 26g), which yields 26g DE 25 in composition (DS-100)-20[CMA].

Water

The density of water at nineteen degrees Celsius is 1.00 g/cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (20% + 24%) = 56%)

56% of the composition. Assuming 100 cm^3 of composition (DS-100)-20[CMA], the grams of water present is determined by multiplying 56 g/cm^3 by 1.00 g/cm^3 (56 × 1 = 56g), which yields 56g of water in composition (DS-100)-20[CMA].

The weights of each individual component are added together to determine the total weight of the composition. The total weight is then utilized to determine each component's weight percentage. For example, CMA (28.8g) + DE 25 (26g) + water (56g) = 110.8g total weight of composition (DS-100)-20[CMA]. 28.8g of CMA represents 25.99% by weight of composition (DS-100)-20[CMA]. 26g of DE 25 represents 23.47% by weight of composition (DS-100)-20[CMA]. 56g of water represents 50.54% by weight of composition (DS-100)-20[CMA].

Composition (DS-100)-40[CMA]

CMA

The specific gravity of CMA is 1.2 g/cm^3. Assuming 100 cm^3 of composition (DS-100)-40[CMA], the weight in grams is found by multiplying 18 cm^3 by 1.2 g/cm^3 (18 × 1.2 = 21.6 g), which yields 21.6g CMA in composition (DS-100)-40[CMA].

DE 25

The density, or specific gravity of DE 25 corn syrup varies between 1.28 – 1.32 g/cm^3. Using an intermediate number of 1.30 g/cm^3, and assuming 100 cm^3 of composition (DS-100)-40[CMA], the weight in grams is found by multiplying 40cm^3 by 1.30g/cm^3 (40 ×1.30 = 52g), which yields 52g DE 25 in composition (DS-100)-40[CMA].

Water

The density of water at nineteen degrees Celsius is 1.00 cm^3. Water comprises the remaining component of the composition, and therefore represents (100% - (18% +40%) = 42%) 42% of the composition. Assuming 100 cm^3 of composition (DS-100)-40[CMA], the grams of

water present is determined by multiplying 42g/cm^3 by 1.00 /cm^3 (42 × 1 = 42g), which yields 42g of water in composition (DS-100)-40[CMA].

The weights of the individual components are added together to determine the total weight of the composition; the total weight is then utilized to determine each component's weight percentage. For example, CMA (21.6g) + DE 25 (52g) + water (42g) = 115.6g total weight of composition (DS-100)-40[CMA]. 21.6 g of CMA represents 18.69% by weight of composition (DS-100)-40[CMA]. 52g of DE 25 represents 44.98 % by weight of composition (DS-100)-40[CMA]. 42g of water represents 36.33% by weight of composition (DS-100)-40[CMA].

The following table summarizes the weight of each component present in the compositions, as well as the percent of the composition represented by the weight:

Composition	CMA		D.E.25		Water	
	Mass (g)	% by wt.	Mass (g)	% by wt.	Mass (g)	% by wt.
(DS-100)-10[CMA]	32.4	29.90%	13	11.99%	63	58.12%
(DS-100)-20[CMA]	28.8	25.99%	26	23.47%	56	50.54%
(DS-100)-40[CMA]	21.6	18.69%	52	44.98%	42	36.33%

The deicing compositions were diluted to various concentrations, including from 5% dissolved solids to 35% dissolved solids as shown on page 15 of the '575 provisional. In order to demonstrate the full range of the components present in the compositions of the present invention, we will show the percent by weight of the compositions when diluted to 5% dissolved solids. The following table summarizes the breakdown of components of the deicing formulations relevant to this claim set in the '575 provisional:

Deicing Composition (including % dissolved solids after dilution)	Carbohydrate % Volume	Salt % Volume (type of salt and approximate concentration)	Carbohydrate % By Weight	Salt % By Weight
A-10 10:90 of 40% DS 25 DE CSU & 30% MgCl2	4% DE 25	27% $MgCl_2$	4.76% DE 25	32.06% $MgCl_2$
A-10 (~5% DS)	0.6% DE 25	4.2% $MgCl_2$	0.77% DE 25	5.37% $MgCl_2$
A-20 20:80 of 40% DS 25 DE CSU & 30 % MgCl2	8% 25 DE	24% $MgCl_2$	9.50% DE 25	28.42% $MgCl_2$
A-20 (~5%DS)	1.3% 25 DE	3.8% $MgCl_2$	1.66% DE 25	4.86% $MgCl_2$
A-40 40:60 of 40% DS 25 DE CSU & 30 % MgCl2	16% 25 DE	18% $MgCl_2$	18.88% DE 25	21.20% $MgCl_2$
A-40 (~5%DS)	2.3% DE 25	2.6% $MgCl_2$	2.95% DE 25	3.32% $MgCl_2$
(DS-100) -10	10% DE 25	27% $MgCl_2$	11.71% DE 25	31.54% $MgCl_2$
(DS-100) - 20	20% DE 25	24% $MgCl_2$	22.98% DE 25	27.52% $MgCl_2$
(DS-100) – 40	40% DE 25	18% $MgCl_2$	44.31% DE 25	19.89% $MgCl_2$
A 10[CMA] 10:90 of 40 % DS of 25 DE CSU & 30 % calcium magnesium acetate	4 % DE 25	27 % CaMg Acetate	4.88% DE 25	30.39% CMA
A-10[CMA] (25% DS)	0.6 % DE 25	4.2 % CaMg Acetate	0.77% DE 25	4.99% CMA
A-20[CMA] 20:80 of 40 % DS of 25 DE CSU & 30 % calcium magnesium acetate	8% DE 25	24% CMA	9.7% DE 25	26.87% CMA
A-20[CMA] (~ 5 % DS)	1.25 % DE 25	3.75 % CaMg Acetate	1.67% DE 25	4.44% CMA
A-40[CMA] 40:60 of 40 % DS of 25 DE	16 % DE 25	18 % CaMg Acetate	19.19% DE 25	19.93% CMA

CSU & 30 % calcium magnesium acetate	(solids of 25 DE corn syrup)			
A-40[CMA] (~ 5 % DS)	2.5 % DE 25	2.8 % CaMg Acetate	2.95% DE 25	3.31% CMA
(DS-100) -10 [CMA]	10% DE 25	27% CMA	11.99% DE 25	29.90% CMA
(DS-100) -20 [CMA]	20% DE 25	24% CMA	23.47% DE 25	25.99% CMA
(DS-100) - 40 [CMA]	40% DE 25	18% CMA	44.98% DE 25	18.69% CMA

Rejections Under 35 U.S.C §102

Anticipation under 35 U.S.C §102 requires each and every limitation of the claim to be disclosed in a single prior art reference, either expressly or inherently. Under 35 U.S.C. § 102(e) the anticipating reference must disclose the invention in an application for patent (or an issued patent) by another filed in the United States before the invention by the Applicant.

Reconsideration is requested of the rejection of claims 46-53 as anticipated by Hartley Patent Nos. 6,436,310; 6,599,440; 6,440,325; and Publication No. 2003/0209690. The Hartley patents all claim priority to U.S. Patent Application No. 09/755,687, filed January 5, 2001. U.S. Patent Application No. 09/755,687 is a continuation-in-part (CIP) application of abandoned U.S. Patent Application No. 09/224,906, filed January 4, 1999, which in turn claimed the benefit of Provisional Application No. 60/070,636, filed January 7, 1998.

The present application is a continuation of U.S. Patent Application No. 10/260,225, filed September 30, 2002, which is a continuation of and hereby incorporates by reference U.S. Patent Application No. 10/025,210, filed December 19, 2001 and issued as U.S. Patent No. 6,468,442 on October 22, 2002, which is a continuation of and hereby incorporates by reference, application no. PCT/US00/20218, filed July 25, 2000 and published February 1, 2001 as International Publication No. WO/01/07532, which, in turn claims priority to and hereby incorporates by reference, U.S. Provisional Application No. 60/145,575, filed July 26, 1999.

As demonstrated in this response, the claims of the present application are supported by U.S. Provisional Application No. 60/145,576, and are therefore entitled to a priority date of July

26, 1999. The filing date of the CIP application to which the Hartley patents claim priority is January 5, 2001, later than the priority date of the present application. Therefore, in order for the Hartley patents to be properly asserted against the claims of the present application under 35 U.S.C. 102(e), the Hartley patents would have to rely on the filing date of either U.S. Patent Application No. 09/224,906, ('906 application) filed January 4, 1999, or Provisional Application No. 60/070,636, ('636 Provisional) filed January 7, 1998. In order for the '906 application or the '636 provisional to be properly asserted against the claims of the present application, the prior applications must have the support required under 35 U.S.C. §112 first paragraph for the invention as claimed. See M.P.E.P. §2136.03 (IV).

Regarding pending claim 46, neither U.S. Patent Application No. 09/224,906 or Provisional Application No. 60/070,636, provide support for the claimed features, "in which the constituents are present in the following concentration: carbohydrate 3 to 44 [%], calcium magnesium acetate 5 to 25 [%], water balance, and where said carbohydrate has a molecular weight in the range of about 180 to 1500, and is at least one selected from the group consisting of glucose, fructose and higher saccharides based on glucose and/or fructose and mixtures thereof." Claims 47-49 depend directly from claim 46, contain the same limitations as claim 46, and are therefore not anticipated by the Hartley Patents.

Regarding pending claim 50, neither U.S. Patent Application No. 09/224,906 or Provisional Application No. 60/070,636, provide support for the claimed features, "in which the constituents are present in the following concentration: carbohydrate 3 to 44 [%], calcium magnesium acetate 5 to 40 [%], water balance, and where said carbohydrate has a molecular weight in the range of about 180 to 1500, and is at least one selected from the group consisting of glucose, fructose and higher saccharides based on glucose and/or fructose and mixtures thereof." Claims 51-53 depend directly from claim 50 and contain the same limitations as claim 50, and are therefore not anticipated by the Hartley patents.

Applicant submits that all of the claims are now in condition for allowance, which action is requested. Please apply any charges or credits to Deposit Account No. 11-1110.

Respectfully submitted,

May 27, 2005
Date

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* CORN SIRUP COMPOSITION - CHROMATOGRAPHIC ANALYSIS

CARBOHYDRATE BASIS

Dextrose Equivalent	Percent Saccharides							
	Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Higher
10	2.3	2.8	2.9	3.0	3.0	2.2	2.1	81.7
15	3.7	4.4	4.4	4.5	4.3	3.3	3.0	72.4
20	5.5	5.9	5.8	5.8	5.5	4.3	3.9	63.3
25	7.7	7.5	7.2	7.2	6.5	5.2	4.6	54.1
30	10.4	9.3	8.6	8.2	7.2	6.0	5.2	45.1
35	13.4	11.3	10.0	9.1	7.8	6.5	5.5	36.4
40	16.9	13.2	11.2	9.7	8.3	6.7	5.7	28.3
45	21.0	14.9	12.2	10.1	8.4	6.5	5.6	21.3
50	25.8	16.6	12.9	10.0	7.9	5.9	5.0	15.9
55	30.8	18.1	13.2	9.5	7.2	5.1	4.2	11.9
60	36.2	19.5	13.2	8.7	6.3	4.4	3.2	8.5
65	42.5	20.9	12.7	7.5	5.1	3.6	2.2	5.5
67	45.1	21.4	12.5	6.9	4.6	3.2	1.8	4.5

* See graphs pages 8, 9, 10, 11, 12 & 13

Data are believed accurate +- 1%

PETERS CHEMICAL COMPANY

Please be sure to inquire about our early order and truckload specials on Ice Melter Products!!!

HOME

Contact Us

Calcium Oxide

Calcium Hydroxide

Lime Kiln Dust

Calcium Chloride

Magnesium Chloride

Sodium Acetate

Calcium Magnesium Acetate

Potassium Chloride

Urea

Ice Melter Blends

Sodium Chloride

Fertilizers

PCC Agricultural Limestone

MATERIAL SAFETY DATA SHEET

Product Name: CMA - Calcium Magnesium Acetate

EPA Reg. No: N/A

1. PRODUCT IDENTIFICATION

Product Name.....Calcium Magnesium Acetate

UN/MA.....N/A

DOT Hazard Class.....N/A

2. INGREDIENTS & RECOMMENDED OCCUPATIONAL EXPOSURE LIMITS

Calcium Magnesium Acetate is non-hazardous

3. PHYSICAL DATA

Specific Gravity (H_2O=1).....1.2 Min.

Boiling Point.....N/A

Vapor Pressure.....NDA

Vapor Density..... N/A

pH.....8-10

Solubility in Water.....Partially soluble in water.

Evaporation Rate.....N/A

Appearance and Odor.....White to Grey angular granule

4. FIRE AND EXPLOSION HAZARD DATA

Flash Point.....N/A

Flammable Limits..... N/A

Seven Things Facility Managers Must Know About Ice Melters!!!

DECLARING WAR on ICE (Product knowledge can help find the "right" weapons)

Break the Ice (comparison of Ice Melting Chemicals)

Fire Extinguishing Media.....Considered non-combustible.

Special Fire Fighting Procedures.....N/A

Unusual Fire and Explosion Hazards....None

5. REACTIVITY DATA

Stability.....Stable

Incompatibility.....N/A

Hazardous Decomposition or By-Products.....N/A

Conditions to Avoid.....N/A

Hazardous Polymerization.....Will not occur

6. SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released: In case of release to the environment, report spills to the National Response Center 1-800-424-8802.

Suggested Local Action: Dike spill and pump to clean container. Flush area with water.

Waste Disposal Method: (EPA Waste identification #: N/A - Consult Federal, State & Local Regulations) In accordance with all Federal, State and Local regulations.

For Hazardous Waste Regulation: call 1-800-424-9346 - The RCRA Hotline.

7. HEALTH HAZARD DATA

Inhalation: Possible with ensuing irritation.

Skin Contact: Possible with ensuing irritation.

Eye Contact: Possible with ensuing irritation.

Ingestion: Possible with ensuing irritation.

Signs & Symptoms of Exposure: Irritation of skin, eyes and respiratory tract.

ACUTE: .....Irritant

CHRONIC: .....N/A

Medical conditions generally aggravated by exposure: Irritation of respiratory

tract.

Chemical listed as Carcinogen or Potential Carcinogen:
.....No

8. EMERGENCY AND FIRST AID PROCEDURE

Skin Contact: Wash thoroughly with soap and water.

Eye Contact: Flush immediately with large amounts of water, lifting the lower and upper lids occasionally.

Ingestion: Give 1 -2 large glasses of water or milk. Induce vomiting. Immediately seek medical aid. Never give liquids to an unconscious person.

9. SPECIAL PROTECTION INFORMATION

Skin: Clean, body-covering clothing should be worn to prevent

irritation in situation where direct contact with product may occur.

Eyes: Employees should be required to wear chemical safety splash goggles in situations where direct contact with the product may result in eye injury.

Other Protective Equipment: Emergency eye wash stations and deluge safety showers should be available in the work areas.

10. SPECIAL PRECAUTIONS

Precaution to be taken in handling and storage: Store in a cool, dry location. DO NOT store near food or feed. Keep out of reach of children and pets.

Product Name.....Calcium Magnesium Acetate

Materials	CAS# OSHA-PEL ACGLH-TLV
Potassium Acetate	127-08-2 N/A N/A
Water	7732-18-5 N/A N/A

MATERIAL SAFETY DATA SHEET

CRYOTECH
Deicing Technology
6103 Orthoway
Fort Madison, Iowa 52627
Emergency Number 800-346-7237

Cryotech CMA® Deicer
This Material Safety Data Sheet contains environmental, health and toxicology information for your employees. Please make sure this information is given to them. It also contains information to help you meet community right-to-know/emergency response reporting requirements under SARA Title III and many other laws. If you resell this product, this MSDS must be given to the buyer or the information incorporated in your MSDS. Discard any previous edition of this MSDS.

Revision Date: November 2004

1. PRODUCT IDENTIFICATION

Cryotech CMA® Deicer

A HAZARD WARNING IS NOT REQUIRED FOR THIS PRODUCT UNDER OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200)

PRODUCT INFORMATION: (800)346-7237

2. FIRST AID MEASURES

Chemical Emergency: Spill, leak, fire, or accident call Chemtrec day or night (800) 424-9300; Outside continental USA call (703) 527-3887

EYE CONTACT:
No first aid procedures are required. However, as a precaution flush eyes with fresh water for 15 minutes. Remove contact lenses if worn.

SKIN CONTACT:
No first aid procedures are required. As a precaution, wash skin thoroughly with soap and water. Remove and wash contaminated clothing.

INHALATION:
Since this material is not expected to be an immediate inhalation problem, no first aid procedures are required.

INGESTION:
If swallowed, give water or milk to drink and telephone for medical advice. Consult medical personnel before inducing vomiting. If medical advice cannot be obtained, then take the person and product container to the nearest medical emergency treatment center or hospital.

3. IMMEDIATE HEALTH EFFECTS
(also see Sections 11 and 12)

EYE CONTACT:
This substance is not expected to cause prolonged or significant eye irritation.

SKIN IRRITATION:
This substance is not expected to cause prolonged or significant skin irritation.

DERMAL TOXICITY:
If absorbed through the skin, this substance is considered practically non-toxic to internal organs.

RESPIRATORY/INHALATION:
If inhaled, this substance is considered practically non-toxic to internal organs.

INGESTION:
If swallowed, this substance is considered practically non-toxic to internal organs.

4. PROTECTIVE EQUIPMENT

EYE PROTECTION:
No special eye protection is usually necessary.

SKIN PROTECTION:
No special skin protection is necessary.

RESPIRATORY PROTECTION:
No special respiratory protection is normally required. However, if operating conditions create high airborne concentrations, the use of an approved respirator is recommended.

VENTILATION:
No special ventilation is necessary. However, if operating conditions create high airborne concentrations of this material, special ventilation may be needed.

5. FIRE FIGHTING MEASURES

FLASH POINT: NA

AUTOIGNITION: NA

FLAMMABILITY LIMITS (% by volume in air):
Lower: NA Upper: NA

EXTINGUISHING MEDIA:
Material does not burn.

FIRE FIGHTING PROCEDURES:
This material will not burn.

COMBUSTION PRODUCTS:
None

NFPA RATINGS:
Health 0; Flammability 0; Reactivity 0; Special NDA
HMIS RATINGS:
Health 0; Flammability 0; Reactivity 0; Other NDA:
(Least-0, Slight-1, Moderate-2, High-3, Extreme-4). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint Coating Association.

6. STORAGE, HANDLING, AND REACTIVITY

HAZARDOUS DECOMPOSITION PRODUCTS: NA

STABILITY: Stable.

HAZARDOUS POLYMERIZATION:
Polymerization will not occur.

INCOMPATIBILITY: None

SPECIAL PRECAUTIONS:
READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.

MATERIAL SAFETY DATA SHEET

7. PHYSICAL AND CHEMICAL PROPERTIES

SOLUBILITY: Partially soluble in water.
APPEARANCE: White to off-white or spherical granule.
BOILING POINT: NA
MELTING POINT: NA
EVAPORATION: NA
SPECIFIC GRAVITY: 1.2 Min.
VAPOR PRESSURE: NDA
PERCENT VOLATILE (VOLUME %): NA
VAPOR DENSITY (AIR = 1): NA
pH: 8–10

8. ENVIRONMENTAL CONCERNS, SPILL RESPONSE AND DISPOSAL

Chemical Emergency: Spill, leak, fire, or accident call Chemtrec day or night (800) 424-9300; Outside continental USA call (703) 527-3887

SPILL/LEAK PRECAUTIONS:
This material is not expected to be toxic to aquatic organisms. Clean up spills immediately, observing precautions in Protective Equipment section.

DISPOSAL METHODS:
Based on information available to Cryotech Deicing Technology, this product is neither listed as a hazardous waste nor does it exhibit any of the characteristics that would cause it to be classified or disposed of as a RCRA hazardous waste.

If product should spill or be otherwise unsuitable for normal applications, it may be used in an alternate manner for deicing such as mixing with sand to prevent freezing and subsequent deicing of surfaces. Empty containers and product unsuitable for any use may be disposed of in sanitary landfill unless state or local regulations prohibit such disposal.

9. EXPOSURE STANDARDS, REGULATORY LIMITS AND COMPOSITION

EXPOSURE STANDARDS AND REGULATORY LIMITS:
None established per OSHA, PEL, and ACGIH TLV (TWA)

COMPOSITION	COMPONENT
100.0%	Cryotech CMA® Deicer
CONTAINING	
96.0%	HYDRATED CALCIUM MAGNESIUM
CAS76123461	AND OTHER ACETATES
< 4.0%	WATER-INSOLUBLE MATERIAL

ACGIH – American Conference of Governmental Industrial Hygienists
OSHA – Occupational Safety & Health Administration
PEL – Permissible Exposure Limits
TLV – Threshold Limit Value
TWA – Time Weighted Average

10. REGULATORY INFORMATION

DOT SHIPPING NAME:
NOT DESIGNATED AS A HAZARDOUS MATERIAL BY THE FEDERAL DOT

DOT HAZARD CLASS: NOT APPLICABLE

DOT IDENTIFICATION NUMBER: NOT APPLICABLE

SARA 311 CATEGORIES:

1.	Immediate (Acute) Health Effects:	No
2.	Delayed (Chronic) Health Effects:	No
3.	Fire Hazard:	No
4.	Sudden Release of Pressure Hazard:	No
5.	Reactivity Hazard:	No

REGULATORY LISTS SEARCHED:

01 = SARA 313	02 = MASS RTK
03 = NTP Carcinogen	04 = CA Prop. 65
05 = MI 406	06 = IARC Group 1
07 = IARC Group 2A	08 = IARC Group 2B
09 = SARA 302/304	10 = PA RTK
11 = NJ RTK	12 = CERCLA 302.4
13 = MN RTK	14 = ACGIH TLV
15 = ACGIH STEL	16 = ACGIH Calculated TLV
17 = OSHA TWA	18 = OSHA STEL
20 = EPA Carcinogen	21 = TSCA Sect 4(e)
22 = TSCA Sect 5(a)(e)(f)	23 = TSCA Sect 6
24 = TSCA Sect 12(b)	25 = TSCA Sect 8(a)
26 = TSCA Sect 8(d)	28 = Canadian WHMIS
29 = OSHA CEILING	

None of the components of this material are found on the regulatory lists indicated.

11. TOXICOLOGICAL INFORMATION

EYE IRRITATION:
The Draize Eye Irritation Score (range, 0-110) in rabbits is 8.7.

SKIN IRRITATION:
The Draize Skin Primary Irritation Score (range, 0-8) for a 4-hour exposure (rabbits) is 0.1. This material was not a skin sensitizer in the Buehler Guinea Pig Sensitization Test.

DERMAL TOXICITY:
The dermal LD50 in rabbits is >5.0 g/kg.

RESPIRATORY/INHALATION:
The 4-hour inhalation LC50 in rats is 4.6 mg/liter.

INGESTION:
The oral LD50 in rats is greater than 5000 mg/liter. Additional Toxicology Data: The 96-hour LC50 in rainbow trout (Salmo gairdneri) is >1000 mg/liter. The 48-hour LC50 daphnia (Daphnia magna) is >1000 mg/liter.

Results of a 28-day oral toxicity study in rats showed that daily doses of 1000 mg/kg of Cryotech CMA Deicer caused no significant toxicity.

12. ADDITIONAL HEALTH DATA

ADDITIONAL HEALTH DATA COMMENT:
All available data is expressed elsewhere in this document.

The above information is accurate to the best of our knowledge. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use or misuse are beyond our control, ***Cryotech Deicing Technology, a Division of General Atomics International Services Corporation makes no warranty, either express or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon.*** Cryotech Deicing Technology, a Division of General Atomics International Services Corporation assumes no responsibility for any injury or loss resulting from the use of the product described herein. User should satisfy himself that he has all current data relevant to his particular use.